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SUNDAY, FEBRUARY 14, 1915.

An "Interesting Fact," Sure Enough

WE are particularly and happily affected by one statement in the report the Administrative Board has just submitted to the Mayor. This statement, which calls attention to the probability that the Street Cleaning Department will have use for a little more ready cash, is as follows:

It is an interesting fact that smooth-paved streets, neglected, become fully as objectionable, if not worse, than the ordinary streets, and require repeated and careful cleaning to make them bearable.

This is indeed an "interesting fact," and no less interesting than truthful, and we can understand how forcefully it must have been impressed on the Administrative Board in perquisitions over Richmond's thoroughfares.

Would it be indiscreet to inquire of the board, now that the interesting fact has been soaked in:

"What are you going to do with it?"

Prudishness Made Ridiculous

A MORAL wave has struck the town of Grayville, Ill., which is close enough to Chicago to bask in the reflected glory of a western metropolis, and the school board has notified high school girls that they can no longer play basketball in bloomers, but must henceforth wear long skirts and shirtwaists. The penalty is—well, the penalty is the displeasure of the honorable board members, of course, plus the prohibition of the use of the school's name.

This harks back to the age, long gone, when for the time bloomer girls on bicycles made folk shudder until they got used to it. But it is just a trifle more ridiculous than any protest against common sense dress that has recently been recorded. In the day of the hobble skirt, shadow gown, petticoatless attire, split skirt and Heaven knows what not follies, to prohibit the use, in an athletic sport, of clothing that makes for proficiency and guarantees safety is to move the hands of the clock away back to nowhere.

There must be something disordered in minds that function after this fashion.

Has Germany Gone Mad?

EVENTS will have to prove to what extent the madness that seems to have taken possession of the German press and of other exponents of German unofficial opinion has infected also the German Government. Berlin newspapers continue to assert that the declaration of the waters surrounding the British Isles as a war zone must furnish this country with notice to keep out, and that should the warning be disregarded, Germany is absolved from all responsibility for all consequences.

Despite these wild statements, we cannot believe that official Germany will give them sanction in action. Possibly the Kaiser's advisers had been willing to believe that the United States could be bluffed into a virtual surrender of its unquestioned and unquestionable rights as a neutral nation. Perhaps Germany thought that a mere warning, unaccompanied by any pretense of lawful blockade, would keep our ships and our men outside the war zone. If that thought was ever held, it must have been dispelled by the firm and statesmanlike note addressed by this government to the German Foreign Office.

The stand taken in that note is the stand taken by every loyal American citizen. We want no trouble with Germany and we seek none. We shall feel sympathy with the German people if, through the hazard and the bitterness of war, they are reduced to any portion of the misery and suffering inflicted on Belgium. But Germany will not be permitted to visit its resentment against Britain on our people. There need be no mistake about that.

Von Hindenburg Beats Back Invader

ONCE more the tremendous importance of the German system of strategic railways has been demonstrated, and the Russian invasion of East Prussia halted and hurried back by reinforcements of Von Hindenburg's veterans rushed to the field of battle along the Mazurian Lakes.

On the frontiers of Poland and East Prussia the forces of the Czar must outnumber greatly those of the Kaiser, but so admirable are the railway facilities that the foresight of the German general staff has provided that Von Hindenburg, in almost every case, has been able to oppose, man for man, the armies of Grand Duke Nicholas, wherever they have menaced German soil. Sometimes the Russians actually have been overwhelmed. The military maxim imputed to General Forrest, "to get their fustest with the most men," has never had more successful application than that given it by the genius of the Teutonic leader.

Twice in this war the Mazurian Lakes have drowned Russian hopes. Accounts of the later Russian reverse in this field are con-

flicting, but Berlin accounts it a great victory, at least temporarily decisive. Unquestionably, it represents a serious setback to Russian arms.

It is noteworthy, however, that every German triumph is achieved at greater cost—and still the Russian hordes come on and on. No gallantry, no military genius, no strategic railways, however admirable, nor lake and morass, however helpful to the resistance of invasion, can withstand indefinitely the sheer weight of overpowering numbers.

Need of Democratic Unity

THE TIMES-DISPATCH does not recall that it has used the words "traitors to their party" to describe the membership of the Democratic opposition to the ship-purchase bill, as alleged by one of our correspondents. That would represent a rather extreme view of the situation, to which we have not committed ourselves.

On the contrary, we have been at pains to concede to these gentlemen—to use a phrase that has been employed in this connection—"the honesty as well as the courage of their convictions." Under the circumstances, that is about as far as ardent Democrats, who believe in Democratic principles and wish fervently to keep the Democracy in power, ought to be willing to go.

To answer directly the question of our correspondent, we do not believe that Representative or Senators in Congress should "vote as directed by the leader or leaders of their party, even though it be contrary to their sincere convictions and beliefs." Our lament has been that any considerable portion of the majority in Congress should find their "sincere convictions and beliefs" in direct and ineradicable conflict with the views of their party colleagues.

Government by party, such as we have in this country, contemplates the yielding of individual views on questions of policy and method that do not involve principle. Otherwise, party government would be impossible. No majority in Congress would ever be able to obtain the enactment of a consistent and constructive program of legislation, if the minority, always actively hostile, should recoil at intervals substantial accretions from within the majority's ranks.

There is no principle involved in this ship-purchase legislation, on which Democrats ought to divide. In effect, it is an application of government ownership to a situation admittedly intolerable, for which no other remedy has been suggested. The suggested remedy is not without ample precedent. The United States owns the Panama Steamship Company and it is preparing to build a railroad through Alaska, to take two examples directly in point. Both represent government action, not in opposition to or competition with private enterprise, but in default of that enterprise.

There is a presidential election in less than two years. Two years ago victory was easy, because the opposition was divided, but two years hence we must fight a united Republicanism, hungry for spoils, longing to repeal Democratic legislation and discredit Democratic policies and helped by all the forces of special privilege the country can muster. If it is to hope for victory, the Democracy must present a united front to the common enemy. If its own forces are disorganized and mutinous, ready to criticize on small provocation and desert on less, what chance has it of perpetuating the policies it believes best fitted to promote the happiness and assure the prosperity of the American people?

It is this aspect of the matter that causes us to survey with such anxious apprehension every evidence of division. In our judgment, the success of the Democracy is of higher consequence to the whole nation than the triumph of the individual views of Mr. O'Gorman or Mr. Vardaman, or of any of their followers.

Justification for this stand will be supplied in ample measure should the Republicans, by any mischance, return to power. Instead of \$30,000,000 invested in steamships owned and controlled by the government, we shall have a larger sum disbursed in annual subsidies to the government's maritime favorites. Instead of policies designed to promote the general welfare, we shall have other policies intended to foster the interests and fill the pockets of special classes and individuals. That is why this is a Democratic newspaper, and why we are filled with grief and disappointment by every tendency toward party disunion.

Fanny Crosby

THE death of Fanny Crosby will bring a pang of almost intimate grief to hundreds of thousands of American hearts. She was said to have been the most prolific writer of gospel hymns since Isaac Watts. At the time of her death she was ninety-five years old, and she had been blind since infancy.

Of the many hymns she wrote, perhaps the best known is "Safe in the Arms of Jesus," sung countless times in churches wherever the English language is spoken. One of the stanzas is as follows:

Safe in the arms of Jesus,
Safe on His love's overshadow,
Sweetly my soul shall rest,
Hark! 'tis the voice of angels,
Born in a song to me,
Over the fields of glory,
Over the jasper sea.

Perhaps this is not poetry in its highest expression, but in the influence the song has exerted and the effect wrought, it is something better. It is a great thing to have carried consolation and peace to weary, world-worn hearts.

A Russian swain asked a Chicago policeman's permission to marry a blushing maid at his side, slipping the copper a \$2 note with a sly wink. Right away the copper saw a bold white slaver, and rushed the pair to the station, where a trusted interpreter explained that it was all perfectly regular; a New York policeman had established the shake-down in the foreign section where the two formerly lived, and they thought Gotham graft was a national custom!

Paris is arming aloft for the reception of Zepplins in numbers. London is preparing its outposts to repel the invaders of the air. Is it possible that at last we are to have a story from the front that will be unusual enough to qualify as news?

It appears now that there will have to be a special session of Congress, for which doubtful blessing the energetic gentlemen of the Senate who conducted the filibuster against the ship-purchase bill will have to accept the blame.

Reports submitted at the annual meeting of the Chamber of Commerce were enough to make the calamity howler hide his head.

There will be plenty of time in the next three weeks to take the ax out of tax.

SONGS AND SAWS

No Appreciation.
"I find the world is so unkind,"
The lady poet pouted.
"To poetry 'tis deaf and blind
Unless each ode be shouted."
"It has no eyes for violets,
In literary posies,
But puts its unconsidered bets
On huge, crass cabbage roses."
"Full oft it seems a waste of time
To write a perfect sonnet,
Well knowing in this age and clime,
No laurels will drop on it."
"Yes, yes, the world is so unkind,"
The poet pouted.
"It is a painful blow, I find,
To have one's genius doubted."

The Poetess Says:
Don't sit passive and believe everything you hear. Tell a few of your own, and get even.

A Political Failure.
"Do you regard Senator Highup as a really great statesman?"
"I should say not! Why, I have known that man to vote directly contrary to his own private interests."

An Unwilling Benefactor.
"Grubbs—do you understand that the country roads are somewhat improved recently?"
Stubbs—They ought to be. The last time I was out in my car I collected most of their mud in the tonneau.

In the Same Line.
"Did you know that Dr. Pullettard, the dentist, was a good deal of an artist?"
"Well, I knew he had a considerable talent for drawing."

Dividing the Labor.
"Do you believe in the rule of the people?" asked the interested constituent.
"In reasonable moderation," replied Alderman Doughbag. "My thought is that the people should rule themselves, while my friends and I look after the finances of the city government."

Perfectly Modest.
"I do not like to make a howl,"
Said Subbass, homeward bound;
"But I do feel there should be straps
Enough to go around."

THE TATTLER.

Gossip From "Down Home"

Says the Rocky Mount Telegram: "Fifty chickens arrested," reads a headline over an article from Asheville. To say the least, the headline will be gobbled by the paragraphers over the State. But the point is, they are not the kind of chickens that you might think; these are game roosters, taken when the officers raided a local chicken fight near Asheville on Sunday. But why should a headline of this character deceive even momentarily a modest and discreet North Carolina editor?

"The wise farmer," according to the Reidsville Review, "says it is rotation for him. He grows corn and peas, feeds the product to his hogs, and they turn it into meat. He grows cattle, grazes and fattens them, sells surplus butter and milk, and the packing house takes every bit of animal as soon as he is ready to sell. He has learned that corn and forage crops are more valuable if there are hogs and cattle on the farm, and that hogs and cattle are more valuable if there is plenty of corn, forage and grazing on the farm." This is rather more than rotation; it sounds a good deal like perpetual motion.

There is no gallantry in the heart of the Greensboro Record. It says: "The Legislature has passed an act permitting women to sign petitions for an election for bonds where their property is subject to tax. If they can vote like some of them can talk when taxpaying time comes around, they will be a power, but if it takes them as long to vote as it does to talk to the tax collector or assessors, they will never be able to get through before the polls close." Soon after the North Carolina women get the ballot, folks "down home" will have an opportunity to play checkers on a pair of coattails. They will belong to the editor of the Greensboro Record, and their perpendicularity to his hair will be occasioned by the intensity of his flight toward the tall grass.

One Tarheel industry at least has not suffered depression as the result of war. Says the Siler City Grit: "Nineteen thousand eight hundred and nine rabbits were shipped from Siler City during the season ending February 1, as compared with 18,653 for the same period last year." And the rabbit crop for next year promises to be quite as large.

The High Point Enterprise records that—"Judge Carter fined Solicitor Abernathy for not sitting down when he told him to do so. This was contempt of court, although the Solicitor is part of the court. However, under a precedent set by Judge Clark years ago, the court can fine and imprison itself." It is not impossible that some courts deserve that treatment.

Current Editorial Comment

Ideals of True Education
Have we not been prone to confuse the transcendent power of the material forces at man's disposal with the powers of man himself, which never more than now needed cultivation and discipline? Increase of power is no gain unless rightly used, and even from the strictly utilitarian point of view, the answer to concentrate attention on things and neglect spiritual values. It is conceivable that a seemingly impractical education, if it made men sober, considerate, steady in thought and deliberate in action, might prove to be practical in the very highest sense. The twentieth century cannot possibly be deficient in that kind of "real" knowledge which has so marvelously transformed man in a century; the great problem to be solved is how to shape the problem of combining this with an adequate ethical culture and discipline of character. Any education which lacks such fortifying elements is like a frail raft sent to sea with a heavy load of valuable machinery, but not built to withstand such a crude and irrational mischance as a tempest. It seems highly probable that the effect of the war upon educational ideals will be to put a new emphasis on the noble requirement. We shall be compelled to see that efficiency is not an end in itself, but only a means to an end which may or may not be the right one; that the "useful" must be useful for something, and that "efficiency" must be necessarily a blessing. It may well be hoped that as soon as the world begins to recover from the present shock, the immediate effect will be a clarification of educational ideals, a new sense on the one side of the necessity of modern knowledge, and a new comprehension on the other of the solid value of the old intellectual discipline.

High Cost of Getting Married
Marriage costs enough without the higher license fee that a bill introduced in the lower house of the General Assembly would impose. To be sure, the increase is only from \$1 to \$2, but in these times every dollar counts. Besides, the purpose of the license system is not to raise revenue, but to throw a barrier against the marriage rate. The fee could be made as high that the system would fall altogether in

this purpose, and the number of irregular unions would be increased, although it may be admitted that most men who contemplate an entrance into the holy estate of matrimony count the cost afterward. The bridegroom's share of the preliminary expense, indeed, is not so great as that of the bride or her parents. But there are men who find wedding garments and a honeymoon trip a burden that needs no addition. Upon what item would they save if the license fee were doubled? Probably the minister would be the first to suffer. His fee depends, as it is, upon the good feeling of the giver. He cannot, or at any rate, does not, demand it in advance; like the physician, he takes his chance of being paid. There are those who appear to think that anything saving of religion should be free, and this is a great shame to conscience in treating the minister meanly.—Philadelphia Public Ledger.

Chats With Virginia Editors

Says the Bristol Herald-Courier: "With Thaw indicted for an escapade which the law says he could not commit, with Jerome pried loose from the 'job of his life,' with Van Horn interned behind the ten of diamonds for the war, and with Billy Sunday chasing the devil out of Philadelphia, it does look like the whirligig of time is in a merry dance." Not to speak of Theodore Roosevelt, interned at Oyster Bay and self-labeled "a private citizen of the private sort."

"It is the common belief that a man must have a lot of money to be rich," is that so?" asks the West Point News. "Do you not know men who really have a lot of money and yet you never think of them as rich? There are many such men, and with all their money they are not rich. The demands on them are always just a little more than they can stand. They are just as far from being rich as the man who earns but \$1.25 a day and finds his expenses \$1.26 a day. It is just as easy to be rich as to be poor." Respectfully referred to that considerable number of persons who have not yet acquired a satisfactory solution of a vexed problem.

Here's a warning, furnished by the James River Clarion, to the gullest and unsophisticated, some of whom, it is thought sometimes, live here in Richmond: "From different parts of the country come stories of a swindle successfully worked on farmers, who thought they were going to get cheap groceries. Two smooth strangers went through the community talking for a house in Chicago, pretending to sell a standard brand of sugar and flour so cheaply that every farmer visited took from \$10 to \$60 worth, and other things besides. Because of the low prices the flour and sugar had to be 'paid in advance.' It is alleged that in one community the swindlers picked up some \$3,000, and no groceries delivered." Moral: Buy from the merchants who advertise their wares in the Clarion. They can't run away.

The Voice of the People

Wants Audit of Gas Department.
To the Editor of the Times-Dispatch:
Sir,—I note "Taxpayer" is in favor of the Gas Department. Works because it would put into circulation in Richmond within three years from \$600,000 to \$1,000,000, nearly altogether among the laboring classes. So far, so good.

However, before going too far, I, as a taxpayer, would like to know exactly just what the Gas Department really is hearing—bet, I mean a year, after all improvements—"betterments" I believe they are called by public service companies—are deducted from operating expenses. I would also like to know, as a taxpayer, if depreciation is accounted for in the annual gas reports, and if not, how the Gas Department gets the works as well as any gas used by the city.

Why not have an audit of the Gas Works? Whether we were to lease or not, believe our citizens would like to know exactly how this public property stands in account with them.
Richmond, February 12, 1915. A VOTER.

Guarding Against Submarines.

To the Editor of the Times-Dispatch:
Sir—A way to guard against submarines was suggested to the writer, remembering how a boy, when bathing, would place himself distant from each other and with ears under water, with each ear in a different position, two stones together under water. Water is a much better conductor of sound than air. So the writer would suggest that the submarine's propeller would go out loudly in all directions for miles. Surely science could construct a means to catch them without putting the ear under water.

Then, some network around the threatened ship could be drawn impervious to the submarine's explosion, and the ship could be outside of dangerous proximity to the ship.

Is not this entirely practicable?

BRUCE MINOR.

Staunton, Va., February 13, 1915.

Right to Dissent From Party.

To the Editor of the Times-Dispatch:
Sir—It is difficult to understand your attitude, and your open advocacy of same, toward Democratic opposition to the President's ship-purchase bill. I do not wish to discuss the merits or demerits of this bill at all, but I do wish to take issue with you when you deny to a Congressman the right to dissent from any bill brought to his own judgment just because he happens to be identified with a party the leaders of which desire that he shall vote a certain different way.

Is it possible that the Times-Dispatch is so partisan in its views and policies that it can deny to the representatives of the people the right to dissent from any bill brought to their own judgment just because they happen to be identified with a party the leaders of which desire that he shall vote a certain different way? It seems that this is the only conclusion to arrive at from the nature of your several editorials on this subject. In one of which you denounce the Democratic opponents of the above bill as traitors to their party, and in still another express the hope that the President might be able to find some means of forcing "party discipline" in regard to those members of the party who refuse to vote as he desires them.

Now, such demands are contrary to all principles of Democracy. We may question the sincerity of such members, but never their inalienable right to vote their honest convictions. We do not send our representatives to Washington to vote at the direction of any one man or to follow the lead of any one subject. We are to use their own discretion and judgment. Any other attitude in this matter belongs properly to the medieval house of lords and nobles. Though, unfortunately, there are comparatively few of us who ourselves vote for issues absolutely independent of party, yet it is a reasonable hope that our representatives should be subject to "party rule" versus "party reason."
HARTER F. WRIGHT.

Richmond, February 12, 1915.

Queries and Answers

Raleigh.
Please tell me whether "Raleigh" or "Ralegh" is the correct spelling of Sir Walter's name.
MISS L. F.

The former is employed by the large majority of writers. We do not recall the other except Birch Edwards and Oldys who insist upon the latter.

Parcels Post.
Please tell me the rate in fifty pounds by parcels post to a place seventy miles from Richmond.
T. L. POWERS.

Fifty-four cents. The post-office will give you a rate sheet covering the whole matter.

Marriage License.
Must the bride be a resident of Virginia or declare her intention to become a resident in order to procure marriage license in this State?
No. SUBSCRIBER.

A Problem.

Please tell me how to get this problem. Divide \$1 between two persons so as to give one one-third more than the other.

About the simplest way is to divide the dollar in two equal parts and add one sixth to one and subtract one-sixth from the other. This will give 50 cents plus 8 1/3 cents for one part and 50 cents minus 8 1/3 cents for the other, or 58 1/3 cents and 41 2/3 cents.

WHERE THE HOUSE DIVIDES

One of the Day's Best Cartoons.



From the Pittsburgh Dispatch

FROM CATAPULT TO CORDITE

When the first man, in the old Stone Age thousands of years ago, threw his first javelin against a hairy mammoth he put his foot over the threshold of the problem of explosives, says a writer in the Philadelphia Public Ledger.

It seemed to him—and our feelings today are with him—that it would be more pleasurable if one could hurt and kill one enemy without the gratuitous thrill of having to sit on the massive task on the verge of a cavernous mouth, or of having to approach within a few paces of the huge legs which might at any moment descend upon him. It would be more convenient to stand at the cave entrance on a dizzy ledge of rock, and hurl a weapon at the distant enemy.

Chemical Catapult.

So man was driven to invent the catapult, and a gun is merely a chemical catapult. The trigger is pulled back like the leather of the catapult, and the sudden and extraordinary expansion of the explosive corresponds to the elasticity of the rubber or spring. The essential feature of both instruments being the employment of some source of more than human power which can be made to yield up its energy at a given moment in the required way.

Explosives are, therefore, tabloid energy or power, and it is a just reminder of the fact that some substances are explosive generally, whereas quite a number of common things may be made explosive by some particular kind of treatment. When water boils on the fire there is no explosion as it is changed into steam, but if the sport were sealed and the whole of the water could be changed into steam in a second there would be an explosion. And the instance is good because it is really a kitchen model of a volcano. Moreover, steam guns were used in America in the sixties.

The essential idea of an explosive is, then, the violent release of some pent-up thing; just the opposite from this standpoint of the catapult, which works by allowing a distended thing—like the leather of the catapult, or the compressed thing, the release gives rise to an air wave and this, of course, is experienced as a sound. It is the sound which is popularly called an explosion.

What is "tabloid" energy? Now, it has been said that an explosive is tabloid force, power, energy. How it is made available? Is it easy to follow the mechanism of an explosive further? Explosives as commonly used are solid substances, which, by burning, produce almost instantaneously an extraordinary large volume of gas. The pressure of the gas, and the blow cause the turning of the wheel, and the burning also produces heat, which, acting upon the gases, increases the

volume still further. It may be suggested that there is no obvious reason why even a sudden and enormous expansion should cause the damage of an explosion. And the suggestion is quite just.

It is only when they are confined that explosives are really dangerous. Gunpowder burned in the open merely causes a noise like "poof" and burns quickly. Gun cotton may be burned on the hand—it is not to be recommended as a fashionable hobby—without any serious inconvenience. Indeed, gunpowder was first used as an incendiary composition. But a firework or gun charged with gunpowder will explode with a loud report and may cause fatal wounds.

"High" and "Low" Explosives.

Gunpowder is the best-known explosive mixture for a large mass of the commonest ingredients—carbon, sulphur and saltpetre. There are several modifications of gunpowder, other than the one substituted for the saltpetre—potassium nitrate. This nitrate gives the oxygen to the mixture, without which it would not burn at all. Other explosive mixtures containing chlorine would have a large amount of oxygen as saltpetre and the nitrate. The different powders are used in different circumstances where a more violent or a slower or a safe explosive is required. For it is not always the same effect which one asks from an explosive. Velocity may at times be sacrificed, say, in favor of a higher weight of common shell. Gunpowder is a "low" explosive. Its explosion is slow and its effect is less violently disruptive.

Dynamite is probably the best known "high" explosive, and the name does not stand for one particular substance, but for a class of explosives which are, in effect, diluted nitroglycerine, and which are generally used for blasting.

Germany's New Explosive.

Gun cotton may be described as a nitrate of cotton wool (which the chemist would call cellulose). Both nitroglycerine and gun cotton are useful in explosives themselves than their derivatives, although Russia and the United States use compressed wet gun cotton. In fact, the high-explosive shells, one of the most famous projectiles is the smokeless propellant used by the British army and navy, cordite.

Germany is reported to be using in the present war a "new" explosive. Its chemical name is trinitro-toluene (picric acid is called trinitro-carbolic), but it is commonly called T. N. T., or in German, "Tyrolos." It is not at all new. In fact, it is a well-known member of a series of aromatic explosives and toluene is a derivative of coal tar. It has long been known that it much improved on ordinary detonators, and that detonators made of T. N. T. were being used in Germany.

THE VALUE OF BIRDS TO MAN

WASHINGTON, February 13.—Among the zoological articles in the Smithsonian annual report is "One on the value of birds to man, in which the author, James Buckland, of London, makes the astounding statement that although man imagines himself the dominant power of the earth, he is nothing of the sort; the true lords of the universe being the insects. For although man has attained preeminence in the material world, he is outdone by animals and practically all plants, and multiply into prodigious numbers in an incredibly short time. Computations show that one species developing thirteen generations a year, and in proportion to the twelfth generation, multiply to ten sextillions of individuals; while a single pair of the well-known gypsy moths, if unchecked, would produce in eight years enough progeny to destroy all the foliage of the United States. One pair of potato bugs, he states, would develop, unchecked, 60,000,000 in a single season, at which rate of multiplication the potato plant would not long survive.

According to Mr. Buckland's article, insects are quite as astounding in their consuming qualities as in their rate of increase; a caterpillar eats twice its weight in twelve days, and in proportion, a horse would consume a ton of hay in twenty-four hours. Certain flesh-eating larvae consume 200 times their original weight in twenty-four hours; in this manner an infant would devour 1,500 pounds of meat during the first day of its life. It is reported by a specialist, that the food taken by a silkworm in fifty-six days equals 56,000 times its original weight. All of which facts show what tremendous destruction insects may cause.

Through its predominating insect diet, and on account of its exceedingly rapid digestion, the bird becomes the most indispensable balancing force of nature; without its assistance, man, with his poisons, the weather, and animals, as well as the parasitic predaceous insects, would be helpless. The author then states how the bird is a benefit to man in a great number of ways; in checking insect invasions, in preserving forests and orchards; their service in the meadows and gardens; their value in protecting live stock,

and their usefulness in the preservation of health and elimination of disease.

Remarkable instances of the birds' service to man include the bird production of the English sparrow in New Zealand with the resulting elimination of the thistle and the caterpillar which were ruining the land and crops, and the coming of Australian agriculture from the grasshoppers. In New Zealand, in individual cases of which an average of 2,400 grasshoppers was found. The story of Frederick the Great, who is alleged to have ordered all small birds killed, because the sparrows had pecked at some of his cherries, and the resulting lack of fruit, but fine crop of caterpillars two years later, proves a graphic lesson. The "Scalp Act" of Pennsylvania, which paid in bounties \$30,000 for the extermination of hawks and owls, lost for the State \$3,500,000 in damage to agriculture due to an increase of small rodents which resulted. When Missouri was free from hawks and owls it came so overrun with destructive rodents that the Legislature offered rewards for their extermination. When banished hawks and owls had performed free of charge. But during the first six months such large sums of money were paid out that a special session of the Legislature was called to repeal the act before the State went bankrupt. In 1912 Lord Kitchener pointed out the necessity of prohibiting the destruction of certain Egyptian birds which prevented insect pests.

In closing Mr. Buckland makes a plea for the preservation of the bird as a valuable natural resource, stating that if their destruction is not checked, a universal disaster, greater than words can express.